



# Hydrogen Europe: European Hydrogen & Fuel cell Project Database

## Project LOWCOST-IC

Low Cost Interconnects with highly improved Contact Strength for SOC Applications

Lower costs and a better long-term stability are needed to accelerate commercialization of Solid Oxide Cell (SOC) technology. Among the enduring challenges is degradation related to the steel interconnect (IC) material and insufficient robustness of the contact between the IC and the cell. LOWCOST-IC will tackle these issues by developing, fabricating and demonstrating low-cost ICs and exceptionally tough contact layers for use in SOC stacks. Novel robust contact layers, utilizing the concept of reactive oxidative bonding, will substantially improve the mechanical contact between the cell and the interconnect, while ensuring a low and stable area specific resistance. The cost of SOC ICs will be reduced by combining cost-effective high volume steel grades with highly protective coatings. Large-scale mass manufacturing methods will be demonstrated for application of the coating by physical vapour deposition (PVD), for subsequent shaping of the ICs by hydroforming and finally for fast printing of contact layers by a drop-on-demand process. Novel computationally efficient stack models will together with hydroforming be customized to decrease the prototyping costs and thereby accelerate IC development. The new interconnect steels, coatings and contact layers will be implemented in the SOC stacks of two commercial manufacturers and undergo extensive testing in an industrially relevant environment. Finally, the cost-effectiveness of the proposed production route will be assessed and compared with existing production routes to facilitate a fast market entry of the project innovations. The overall effort will bring the technological solutions from their current TRL 3 to TRL 5. To achieve the optimum output, the LOWCOST-IC consortium comprises the entire interconnect and contact layer supply chain.

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## Funding

European Union through FCH JU: Grant agreement 826323 - [CORDIS link](#)

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## Project partners

**Coordinator :**

AKTIEBOLAGET SANDVIK MATERIALSTECHONOLOGY

**Partners :**

[Aperam](#)

[AVL List GmbH](#)

[JÜLICH - Forschungszentrum Jülich GmbH](#)

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**Sub project(s)**

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